AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently amended): A system for the electrical regulation of a device for transmission of power between, on one side, ~~the~~ a thermal engine and a pair of electrical machines equipping an automobile vehicle, and on the other side, ~~its~~ drive wheels of the automobile vehicle,

the thermal engine being connected to the two electrical machines by means of a mechanical assembly, ~~whereas~~

an electrical connecting device ~~situated~~ being located between the two electrical machines ~~provides~~ so as to provide a direct passage for power from any one ~~machine~~ of the two electrical machines to the other of the two electrical machines, without a significant intermediate energy storage or recovery element, ~~this~~

the connecting device being controlled ~~such~~ so that the power generated by any one of the two electrical machines is immediately consumed by the other of the two electrical machines, and ~~in order~~ so that the two electrical machines respond to ~~the~~ requirements of ~~the~~ a drive train, ~~the connection providing the~~

the connecting device comprising a bus connected to the two electrical machines by means of two inverters, each of said inverters being associated with one of the two electrical

machines, so as to provide a transfer of electrical power between the two electrical machines ~~and achieving this by means of two inverters, each one of said being associated with one electrical machine, these two inverters being connected to a~~

the bus ~~whose~~ having two lines ~~are~~ connected via a capacitor, ~~characterized in that, on the one hand, it is designed to ensure that the~~

wherein said system comprises an electrical regulation module regulating a voltage (V) across ~~the~~ terminals of the capacitor ~~be~~ so that said voltage is continuously maintained at or around a given voltage setpoint value (Vref), ~~called `voltage setpoint value`, and on the other, that it~~

wherein said electrical regulation module acts ~~is capable of acting~~ on ~~the torque~~ torques of ~~each~~ both of the two electrical machines, either separately or simultaneously, and in any case continuously, in response to ~~the~~ an error signal resulting from ~~the~~ a comparison of ~~the~~ a measured value of ~~this~~ the voltage (V) with respect to ~~said~~ the voltage setpoint value (Vref).

2. (Currently amended): The system for electrical regulation of a power transmission device as claimed in claim 1, ~~characterized in that a value □, called `electrical setpoint value`,~~ wherein an electrical setpoint value (Σ) is produced by a corrector device from the error in the voltage value of the capacitor with respect to the voltage setpoint value (Vref).

3. (Currently amended): The system for electrical regulation of a power transmission

device as claimed in claim 2, ~~characterized in that the sum Ca.□a+Cb.□b~~ wherein a sum Ca.ωa+Cb.ωb remains continuously equal, or substantially equal, to ~~said value referred to as `electrical setpoint value`□~~ the electrical setpoint value (Σ), Ca and Cb being ~~the~~ values of ~~the~~ torques respectively delivered by each of the two electrical machines, ~~whereas □a and □b are the regime values (rotation speeds) of each of these machines~~ and ωa and ωb being values of respective rotation speeds of each of the two electrical machines.

4. (Currently amended): The system for electrical regulation of a power transmission device as claimed in claim 1, ~~characterized in that it disposes of one free input corresponding to a value M, referred to as `mechanical setpoint value`, that is~~ wherein the system receives an input of a mechanical setpoint value (M) defined for the transmission.

5. (Currently amended): The system for electrical regulation of a power transmission device as claimed in claim 4, ~~characterized in that~~ wherein the electrical regulation is performed by resolving, either a system of two equations with two unknowns Ca and Cb, Ca and Cb being ~~the torque values~~ values of torques respectively delivered by each of the two electrical machines, when ~~these~~ the electrical machines are not in torque limit, or a system comprising one equation and one inequality with two unknowns Ca and Cb, in ~~the~~ other situations, so as to continuously ensure that ~~the~~ a sum ~~Ca.□a+Cb.□b~~ Ca.ωa+Cb.ωb remains continuously equal, or substantially equal, to a given ~~value □, called `electrical setpoint value`~~ electrical setpoint value (Σ), and that

~~the~~ a value of ~~the~~ a controlled mechanical quantity is as close as possible to ~~said~~ the mechanical setpoint value ~~M~~ (M).

6. (Currently amended): The system for electrical regulation of a power transmission device as claimed in claim 1, ~~characterized in that~~ wherein the transfer of power between the two electrical machines is reversible.

7. (Currently amended): The system for electrical regulation of a power transmission device as claimed in claim 2, ~~characterized in that it disposes of one free input corresponding to a value M, referred to as `mechanical setpoint value`, that is~~ wherein the system receives an input of a mechanical setpoint value (M) defined for the transmission.

8. (Currently amended): The system for electrical regulation of a power transmission device as claimed in claim 3, ~~characterized in that it disposes of one free input corresponding to a value M, referred to as `mechanical setpoint value`, that is~~ wherein the system receives an input of a mechanical setpoint value (M) defined for the transmission.

9. (Currently amended): The system for electrical regulation of a power transmission device as claimed in claim 2, ~~characterized in that~~ wherein the transfer of power between the two electrical machines is reversible.

10. (Currently amended): The system for electrical regulation of a power transmission device as claimed in claim 3, ~~characterized in that~~ wherein the transfer of power between the two electrical machines is reversible.

11. (Currently amended): The system for electrical regulation of a power transmission device as claimed in claim 4, ~~characterized in that~~ wherein the transfer of power between the two electrical machines is reversible.

12. (New): A system for the electrical regulation of a device for transmission of power between, on one side, a thermal engine and a pair of electrical machines equipping an automobile vehicle, and on the other side, drive wheels of the automobile vehicle,

the thermal engine being connected to the two electrical machines by means of a mechanical assembly,

an electrical connecting device being located between the two electrical machines so as to provide a direct passage for power from any one of the two electrical machines to the other of the two electrical machines, without a significant intermediate energy storage or recovery element,

the connecting device being controlled so that the power generated by any one of the two electrical machines is immediately consumed by the other of the two electrical machines, and so that the two electrical machines respond to requirements of a drive train,

the connecting device providing a transfer of electrical power between the two electrical machines by means of two inverters, each one of these inverters being associated with one electrical machine, these two inverters being connected to a bus having two lines connected via a capacitor,

wherein the connecting device ensures that a voltage (V) across terminals of the capacitor is continuously maintained at or around a given voltage setpoint value (Vref),

wherein the connecting device acts on the torques of both of the two electrical machines, either separately or simultaneously, and in any case continuously, in response to an error signal resulting from a comparison of a measured value of the voltage (V) with respect to the voltage setpoint value (Vref),

wherein an electrical setpoint value (Σ) is produced by a corrector device from the error in the voltage value of the capacitor with respect to the voltage setpoint value (Vref), and

wherein a sum $Ca.\omega a+Cb.\omega b$ remains continuously equal, or substantially equal, to the electrical setpoint value (Σ), Ca and Cb being values of torques respectively delivered by each of the two electrical machines, and ωa and ωb being values of respective rotation speeds of each of the two electrical machines.

13. (New): The system for electrical regulation of a power transmission device as claimed in claim 12, wherein the system receives an input of a mechanical setpoint value (M) defined for the transmission.

14. (New): The system for electrical regulation of a power transmission device as claimed in claim 13, wherein the electrical regulation is performed by resolving, either a system of two equations with two unknowns Ca and Cb, Ca and Cb being values of torques respectively delivered by each of the two electrical machines, when the electrical machines are not in torque limit, or a system comprising one equation and one inequality with two unknowns Ca and Cb, in other situations, so as to continuously ensure that a sum $Ca.\omega a+Cb.\omega b$ remains continuously equal, or substantially equal, to a given electrical setpoint value (Σ), and that a value of a controlled mechanical quantity is as close as possible to the mechanical setpoint value (M).

15. (Currently amended): The system for electrical regulation of a power transmission device as claimed in claim 12, wherein the transfer of power between the two electrical machines is reversible.

16. (Currently amended): The system for electrical regulation of a power transmission device as claimed in claim 13, wherein the transfer of power between the two electrical machines is reversible.

17. (Currently amended): The system for electrical regulation of a power transmission device as claimed in claim 14, wherein the transfer of power between the two electrical machines is reversible.